INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6:

(11) International Publication Number:

WO 99/19723

G01N 29/02

A1

(43) International Publication Date:

22 April 1999 (22.04.99)

(21) International Application Number:

PCT/US98/21287

(22) International Filing Date:

8 October 1998 (08.10.98)

(30) Priority Data:

08/947,821

US

9 October 1997 (09.10.97)

(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application 08/947.821 (CIP)

Filed on

9 October 1997 (09.10.97)

(71) Applicant (for all designated States except US): BAKER HUGHES INCORPORATED [US/US]; 3900 Essex Lane, Houston, TX 77027 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): JONES, Gregory, M. [GB/GB]; 28 Bushbys Lane, Formby, Merseyside L37 2DZ (GB). POVEY, Malcolm, J., W. [GB/GB]; Greystones Farm, Bradshaw Lane, Huddersfield HD7 5UZ (GB). CAMP-BELL, John [GB/GB]; 36 Cromptons Lane, Liverpool L18 3EX (GB).

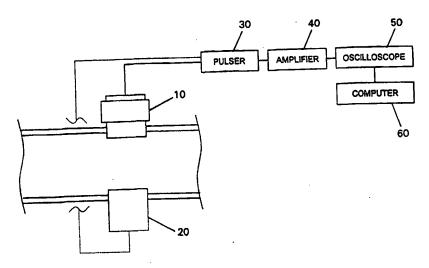
(74) Agents: DUNLAP, Charles, E. et al.; Howell & Haferkamp, L.C., Suite 1400, 7733 Forsyth Boulevard, St. Louis, MO 63105 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

(54) Title: MEASUREMENT AND CONTROL OF ASPHALTENE AGGLOMERATION IN HYDROCARBON LIQUIDS



(57) Abstract

A method is provided for measuring the agglomerative state of asphaltenes in oil by applying an acoustic signal to the oil, detecting the scattered acoustic energy and using this detected signal to determine the relative particle size distribution of the asphaltene particles in the oil and/or their state of agglomeration. A method for controlling the agglomerative state of the asphaltenes which is based on the acoustic measurement technique is also provided.